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STUDY BY THE STAFF OF THE U.S.

General Accounting Office

Logistics Management: Issues For Planning

The Federal Government owns many billions of dollars of material subject to logistics management functions ranging from determining and satisfying needs to disposal of material no longer needed.

This study examines current and emerging issues relating to the Government's management of these functions. It emphasizes major problems and concerns, congressional interest and needs, and represents the perspective GAO is using to organize its audit efforts.



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FOREWORD

The Federal Government owns many billions of dollars of material subject to logistics management functions. The Department of Defense alone owns material valued at over \$226 billion. Such material can range from the largest aircraft carrier to a shoe string. Comparable data for civil agencies are not readily available; however, these agencies also manage vast inventories valued at more than a billion dollars. The cost to operate and manage the various physical distribution programs within the defense and civil agencies is enormous and must assure that supplies are available when and where needed worldwide. Because of the size and significance of logistics functions, we devote a substantial part of our audit work to this area.

The Comptroller General has assigned to the Procurement, Logistics and Readiness Division the responsibility for analyzing technical issues in the Government's management of its personal property and for planning the Office's audit work on those issues. This study is based on our audit plans for work in the logistics management area. It is organized in the form of those issues we believe deserve the greatest emphasis to meet the concerns of the Congress and to help resolve major problems.

Information on this study and our audit plans can be obtained from Charles R. Comfort, Issue Area Planning Director, Procurement Logistics and Readiness Division, on (202) 275-3637.

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CHAPTER 1
LOGISTICS MANAGEMENT

INTRODUCTION

The Logistics management issue area encompasses all of those functions that are required as a result of the Government's ownership or use of property other than real property (land and buildings), ranging from determining and satisfying needs to disposal of material no longer needed. Consequently, it includes such functions or processes as:

- Determining and satisfying needs (Chapter 6)
- Managing inventories (Chapter 8)
- Storage and preservation (Chapter 9)
- Distribution and transportation (Chapter 10)
- Utilization (Chapter 11)
- Maintenance and repair (Chapter 12)
- Disposal (Chapter 13)
- Cataloging and Standardization (Chapter 14)

Effective and efficient management of logistics functions is, to a large degree, dependent upon establishing and implementing suitable policies, doing adequate "front-end" planning for logistics support of major equipment systems, maintaining accurate and useful management information systems, and independently reviewing operations and identifying needed improvements. (See chapters 3, 4,5, and 7.)

This Logistics Management plan does not include the general procurement and major acquisition functions such as determination of requirements for new major systems--except logistics support systems--or the acquisition process for new systems, and the contracting process itself. GAO's Mission Analysis and Systems Acquisition Division is responsible for auditing these functions.

Government material subject to logistics management functions is valued at hundreds of billions of dollars and can range from paper clips to the largest aircraft carrier. It includes items that may be owned in great quantity and those that are one of a kind. Thus it comprises the millions of items of equipment, major subassemblies, repair parts, and consumable supplies in Government inventories and the material contained in the Government's stockpile of critical material. As of September 30, 1978, the Department of Defense alone owned material which was valued at more than \$226 billion as shown in the following table.

Material (Personal Property) Owned
By The Department of Defense
As Of September 30, 1978

<u>Description</u>	<u>Value</u> <u>(in millions of dollars)</u>
Supply systems material	\$ 58,837
Plant equipment	14,996
Industrial fund material	915
Excess and surplus property	4,882
Military equipment in use	<u>146,896</u>
Total	<u>\$226,526</u> 1/

Comparable data for civil agencies is not readily available; however, these agencies manage large amounts of material. For example as of September 30, 1978, material inventories on hand in GSA's supply depots totaled \$215.7 million. During fiscal year 1978, the value of material shipped to customer agencies from these depots exceeded \$731 million. Data reported to GSA by 8 civilian Executive Departments and 16 independent agencies showed that these organizations had supply inventories of more than a billion dollars on hand as of September 30, 1978, and had issued about \$1.2 billion worth of material during the fiscal year ending that date.

ISSUE AREA OBJECTIVES

The importance of this issue area is obvious when one considers the magnitude of the dollars involved and the fact that the way the Government manages its material affects the cost and effectiveness of virtually all Government programs. The two paramount questions that are pertinent when the issue area is considered are:

--Does the Government acquire and retain only those materials that are needed to further approved programs?

1/ Values for long-life equipment, such as ships represent acquisition cost. Values of items other than major equipment in supply systems inventories is generally based upon standard prices, representing replacement or estimated purchase price. The value of major equipment is derived from the unit cost based on the most recently executed contract for large quantity production.

--Does the government operate, maintain, and otherwise manage its material efficiently and economically?

The overall objective of GAO's work in this issue area is to:

Improve the policy and management processes governing the Government's stewardship of material to foster optimum program effectiveness at the lowest possible cost.

MAJOR PROBLEMS AND ISSUES

Many of the problems pertinent to this issue area--an area that is essentially function or process oriented rather than programmatic--are grounded in the parochialism and resistance to change. Often new concepts of performing various functions are accepted on a theoretical basis but little emphasis is given--from top management on down--to getting them implemented.

For example, the single manager concept has been implemented in the Government for a number of functions or activities. The establishment of (1) a single manager for ammunition, (2) the Defense Logistics Agency, (3) the Military Airlift Command, and (4) the General Services Administration are examples. Yet much more can be done. One possibility would be the designation of a single overall logistics manager in DOD.

Slow progress in greater intra or interagency logistics support is another problem area that requires GAO's attention. The Government has to identify and implement ways in which it can perform its material management functions more economically and efficiently. Elimination of unnecessary duplicate activities offers the potential for large savings.

Finding better ways to determine needs, manage inventories, and utilize equipment to preclude acquiring more items than are necessary to further approved programs are areas to which GAO has devoted considerable attention in the past because of the potential for savings and will continue to do so in the future.

The failure to identify logistics requirements early in the development stage of major weapons systems or items of equipment and plan for the logistics support of the system throughout its life cycle can result in substantial unnecessary costs over a long period of time. Although DOD has developed an integrated logistics support planning procedure, GAO will have to evaluate the manner in which it is being implemented for new weapons systems now under development.

The military has had problems keeping up with its maintenance workload despite large increases in its maintenance budget and reduced asset activity. Specific areas that need attention include (1) shipyard maintenance, (2) the potential for using private industry for depot maintenance, and (3) the proliferation of aircraft component repair resources. Also, new, more economical maintenance concepts and practices used by private industry have not been adequately considered and adopted when feasible. Much needs to be done to improve maintenance productivity.

A number of problems are inherent in the distribution of Government material. Shipments are not being managed to achieve lower transportation costs. Order and shipping times are excessive resulting in unnecessary inventory investment. Loss and damage to material in transit is not minimized. New concepts and techniques in transportation have not been adequately considered.

The foregoing are illustrative of the major problems affecting logistics management. GAO's efforts in facilitating resolution of such problems can contribute significantly to more effective and efficient logistics support.

In addressing the problems we have identified, we plan to emphasize improving systems deficiencies that impair sound logistics management at all levels and have significant impact on the effectiveness and efficiency of logistics management operations, and the broad concepts, structures, and policies that govern such operations. In our future work we will:

- examine, on a broad basis, the feasibility of alternative logistics concepts, structures, and policies that could be applied agency or Government-wide to provide necessary mission support at lower cost,
- review the adequacy of the implementation of sound concepts, structures, and policies once they have been generally accepted by Government managers, and
- review the operation of certain functions or processes of logistics management to determine whether they are being performed effectively and efficiently.

Because Logistics Management is an area that is primarily function or process oriented, we have identified key areas to study which should provide sufficient flexibility to assure appropriate coverage of the many interrelated aspects of each function.

Two primary considerations in selecting these areas were (1) the potential for savings and (2) indicated congressional interest.

Regarding the latter, there is broad congressional interest in virtually all aspects of logistics management. Such matters as (1) concern about the problems the military has had keeping up with its depot maintenance workload (and the attendant cost), (2) the potential for savings through greater intra and interagency sharing of logistics support functions, (3) life cycle costing of major weapons systems and the adequacy of planning to minimize such costs, and (4) the effect of inadequate funding on military readiness, are some of the areas that the Congress or its committees have indicated as areas of interest.

RECENT TRENDS AND OUTLOOKS

The magnitude of this issue area is not likely to change substantially during the next 3 to 5 year period. The United States will continue to own large amounts of military equipment and spare parts that will be subject to the logistics management functions discussed earlier. Also, the Government's role in meeting the needs of its citizens will undoubtedly continue to require it to manage substantial amounts of material.

Improvements in logistics management have taken place over the last few years but at a slow pace. Opportunities abound for the implementation of "better ways of doing things" in all of the logistics management functions. Greater use of the single manager concept, increased intra and interagency sharing of logistics support, improved visibility over repair parts inventories, introduction of more economical maintenance concepts, and better "front-end" logistics planning are but a few of the things that need continued "emphasis" by GAO.

MAJOR LEGISLATION AFFECTING LOGISTICS MANAGEMENT

Major legislation enacted by the Congress affecting logistics management in the Government includes:

Federal Property and Administrative Services Act of 1949

This Act created the General Services Administration and imposed certain requirements intended to provide for the Government an economical and efficient system for the procurement and supply of property, the utilization of available property, and the disposal of surplus property. Numerous refinements have been brought about by subsequent amendments to the Act.

Budget and Accounting Procedures
Act of 1950

This Act requires that Government accounting systems provide both effective control over property and adequate financial information needed for management purposes.

The Armed Services Procurement
Act of 1947

This Act prescribes legal requirements relating to the procurement of services and property by DOD, the Coast Guard, and NASA.

1949 Amendments to the National Security Act (Public Law 216 of 1949)

This Act introduced working capital funds into the DOD financial management systems as a means of financing inventories of materials and also required for the first time that financial records be maintained for personal property owned by DOD.

Annual DOD and Other Appropriations Acts

These acts, especially those pertaining to DOD, frequently contain requirements or restrictions to be complied with by agencies. Included are such things as maximum or minimum amounts to be expended for specific aspects of material management or for acquisition of particular goods or services from commercial resources. In addition, these acts can impose specific review and reporting requirements on GAO relating to logistics management.

The Defense Cataloging and Standardization Act (1952)

This Act provided the statutory basis and authority for the establishment of a single catalog system for DOD and for its coordination with GSA.

10 U.S.C. 2701 and 3302

These sections of the law require the Secretary of Defense to establish an efficient, economical, and practical integrated supply system to meet the needs of the military services without overlapping operations or functions.

Section 22 of Interstate Commerce Act

This section allows commercial carriers to offer reduced rates for transportation of Government material.

Public Law 94-519

This law, which became effective in 1977, amended the Federal Property and Administrative Services Act of 1949. It brought about significant changes in the Government's policies and procedures for transferring unneeded, excess, and surplus, personal property to non-Federal recipients. The law contains a comprehensive, open-ended reporting requirement which makes it necessary for us to submit biennial reports to the Congress on its impact and implementation.

CONGRESSIONAL COMMITTEES

Because all agencies and activities of the Government are involved in logistics management, congressional committee interest in the issue area is widespread. All Senate and House committees and subcommittees responsible for agency oversight or appropriations have a continuing interest and from time to time request GAO to perform reviews in the issue area. Often, these special requests concern alleged mismanagement.

Based on past experience, the following congressional committees are most interested in our work in this issue area:

Senate

- Appropriations Committee
- Armed Services Committee
- Energy and Natural Resources Committee
- Governmental Affairs Committee
- Commerce, Science, and Transportation Committee

House of Representatives

- Appropriations Committee
- Armed Services Committee
- Government Operations Committee
- Post Office and Civil Services Committee
- Public Works and Transportation Committee

Joint

- Joint Committee on Printing

PRINCIPAL FEDERAL AGENCIES INVOLVED

All agencies of the Government are involved, to a degree, with logistics management functions. However, the preponderance of GAO's work in this issue area has been, and likely will continue to be, related to the Department of Defense and the General Services Administration.

RELATION TO OTHER ISSUE AREAS AND OTHER DIVISION'S IMPLICIT AUDIT RESPONSIBILITIES

Possession of material by the Government is not an end in itself, material is acquired and managed only to enable the Government to carry out its approved programs. Thus this issue area, in effect, is related to or supports virtually all other issue areas. It is more closely related, however, to the following:

<u>Issue Area</u>	<u>Lead Division</u>
Automatic Data Processing (0100)	Accounting and Financial Management Division
Internal Auditing Systems for Federal and Federally Assisted Programs (0200)	Accounting and Financial Management Division
Federal Personnel Management and Compensation (0300)	Federal Personnel and Compensation Division
International Affairs (0600)	International Division
Military Readiness, Mobilization Planning, and Civil Preparedness (0800)	Procurement, Logistics, and Readiness Division
Energy (1600)	Energy and Minerals Division
Materials (1800)	Energy and Minerals Division
General Procurement (1900)	Procurement, Logistics, and Readiness Division
Transportation Systems and Policies (2400)	Community and Economic Development Division
Accounting and Financial Reporting (2800)	Accounting and Financial Management Division
National Productivity (2900)	Accounting and Financial Management Division
Procurement of Major Systems (3000)	Mission Analysis and Systems Acquisition Division

CHAPTER 2

KEY LOGISTICS MANAGEMENT AREAS INCLUDED IN THIS STUDY

As stated earlier because Logistics Management is an area that is primarily function or process oriented, we have identified key areas to pursue which should provide sufficient flexibility to assure appropriate coverage of the many interrelated aspects of each function. We have identified the following 13 lines of effort as meriting our immediate attention.

CAN ALTERNATIVE LOGISTICS CONCEPTS, STRUCTURES, AND POLICIES PROVIDE NECESSARY MISSION SUPPORT AT LOWER COST? (CHAPTER 3)

ARE SOUND LOGISTICS POLICIES ADEQUATELY IMPLEMENTED? (CHAPTER 4)

CAN LOGISTICS MANAGEMENT INFORMATION SYSTEMS BE IMPROVED? (CHAPTER 5)

CAN THE DETERMINATION OF WHOLESALE NEEDS BE IMPROVED? (CHAPTER 6)

IS INTEGRATED LOGISTICS SUPPORT PLANNING ADEQUATE TO ASSURE THAT COMPLEX WEAPONS SYSTEMS' GOALS ARE MET AND LIFE CYCLE COSTS ARE OPTIMIZED? (CHAPTER 7)

CAN INVENTORY MANAGEMENT AT THE USER AND RETAIL LEVEL BE IMPROVED? (CHAPTER 8)

DO STORAGE AND PRESERVATION SYSTEMS PROVIDE ADEQUATE CONTROL AND PROTECTION OF MATERIAL INVENTORIES? (CHAPTER 9)

IS THE DISTRIBUTION OF MATERIAL AND THE MOVEMENT OF PERSONNEL DONE EFFICIENTLY? (CHAPTER 10)

CAN IMPROVEMENTS BE MADE IN THE UTILIZATION OF EQUIPMENT TO REDUCE EQUIPMENT REQUIREMENTS? (CHAPTER 11)

ARE EQUIPMENT MAINTENANCE PROGRAMS AND PROCEDURES ACHIEVING OPTIMUM EFFICIENCY AND EFFECTIVENESS? (CHAPTER 12)

IS UNNEEDED PROPERTY MANAGED PROPERLY? (CHAPTER 13)

CAN LOGISTICS EFFECTIVENESS BE INCREASED THROUGH
IMPROVED CATALOGING AND STANDARDIZATION PRACTICES?
(CHAPTER 14)

CAN U. S. GOVERNMENT PRINTING BE IMPROVED?
(CHAPTER 15)

The remainder of this study examines these major issues and concerns in more detail and provides the perspective GAO is using to organize its audit efforts. Appendix provides a listing of pertinent GAO reports issued in these areas since March 1980.

CHAPTER 3

CAN ALTERNATIVE LOGISTICS CONCEPTS, STRUCTURES AND POLICIES PROVIDE NECESSARY MISSION SUPPORT AT LOWER COST?

Logistics systems, the backbone to achieving both peacetime and wartime mission goals, are constantly changing and improving. Change, however, is slow, stymied by parochial interest and usually occurs in small degrees. There are innovative options, however, that offer the opportunities for substantial improvements and financial savings. For example

- logistics systems used by one entity (government or private) may be beneficial for another government agency,
- consolidation of government logistical support functions may be viable, or
- there may be entirely new systems that could be used, at least on a test basis.

The significance of this area lies in the billions of dollars the Government spends on logistics--for example the Department of Defense has \$226 billion invested in material and equipment inventories. The current fragmented approach to logistics, however, has to be broadened if our efforts are to succeed. For example in the Department of Defense each military department is responsible for its own logistics needs. That logistics should remain a service responsibility is a long time argument, which slows worthwhile consolidation attempts, and is yet to be resolved.

The dollar magnitude involved and need for change has prompted Congressional and logistics managers' interests in several new concepts, structures, or policies including:

- National Supply System: The concept of a national supply system has been discussed in the Federal Government for more than a decade. Under this system there would be one manager for each supply item throughout the Government thereby eliminating avoidable overlap and duplication in supply functions.
- Single Management Organizations: This concept envisions consolidation of responsibility for all aspects of logistics, or for certain discrete functions (transportation, supply, maintenance, disposal) within the logistics area, under a single organization.

--Interservice/Interagency Logistics Support: Under this concept one military service or component thereof provides logistic and administrative support to another service or component. Interservicing or interagency logistics support is an option, short of single management, of matching total requirements to total capacity with resultant overall savings to the Government.

--Consolidation of Command Structures: As the complexity of defense systems has increased, individual commands and activities have proliferated within the Department of Defense to develop, procure, manage, and operate these systems. In many instances consolidation of command structures could not only decrease costs but increase the effectiveness of the overall defense logistics missions.

--Interoperability of Weapons Systems: U.S. and NATO military units in Europe represent a joint force for controlling Soviet Bloc aggression. There is presently much interest in achieving interoperability of weapons and logistical support functions used by NATO members.

Existing and emerging logistical concepts and organizational changes warrant our continuous attention and scrutiny. A determined effort to adopt and adapt existing logistical programs in line with the concepts discussed above could save hundreds of millions of dollars in support costs by eliminating layers of support inventory.

The current mood of the American people and the Congress to limit or cap Government expenditures mandates that resources be managed more efficiently. At the same time, the ability of the logistical systems to respond in time of crisis must be maintained and strengthened. Given these circumstances, we believe the logistical establishment will be increasingly more receptive to suggestions for changes that will improve economy and efficiency of operations and enhance support capability.

GAO OBJECTIVES AND EMPHASIS

Our overall objective in this area is to improve the effectiveness and efficiency of the Government's logistic support systems by exploring alternatives that can provide necessary mission support at lower cost. Our more specific objectives include

- the application of new logistics concepts or policies,
- the modification of existing concepts or policies, or
- the initiation of organizational changes.

To achieve these objectives, the following questions need to be addressed:

1. How do agencies keep abreast of new and emerging logistics concepts?
2. Are there new concepts that should be applied to agencies logistics operations?
3. Are agencies properly organized to manage their logistic support systems?
4. Can logistical operations be improved by having a single manager for all aspects of logistics within an agency or Government-wide?
5. Should there be Government-wide managers for discrete logistical functions (supply maintenance, transportation, and disposal)?
6. Can increased use of interagency support be obtained to provide more efficient allocation of resources?
7. Can successful logistics concepts or policies of one agency be applied to another?
8. Can agency logistic managers turn to commercial logistic systems for support; if so, are there assurances that dedicated and reliable sources would be available in a contingency?
9. What actions are needed to achieve greater interoperability of NATO weapons systems and logistics operations?

During the recent past, we have put significant effort into improving the Government's logistics operations through more reliance on single managers and increased interagency support (Questions 4 and 6, respectively). We have issued a number of reports demonstrating that significant savings could be achieved through strengthening and expanding either the single manager approach or consolidating functions under interagency support arrangements to eliminate duplication of effort or waste.

For example, we have been successful in getting the Department of Defense and the Services to (1) establish a single manager for conventional ammunition, (2) consolidate duplicative support functions in the Pacific, (3) consolidate certain lease support activities within the same

geographic area, (4) standardize automated material handling systems, (5) establish interservice use of military aviator training ranges and (6) improve the management of rail switching locomotives. Moreover, significant savings have resulted from the implementation of our recommendations to improve the management of wholesale logistics support in the Marine Corps.

We also addressed question 1 in our review of how DOD keeps abreast of emerging logistics concepts when we looked at the management of its logistics studies and analysis program. DOD is currently in the process of implementing our recommendation that it centrally manage this program.

Our work in this area is a continuing process and our future emphasis will concentrate on determining if the Army's logistics system is properly organized (question 3); if successful logistics concepts or policies of one agency can be applied to another (question 7); and if commercial logistics systems can be used effectively for more items (question 8). We also will evaluate the potential for greater interoperability of logistics support used by NATO forces (question 9).

CHAPTER 4

ARE SOUND LOGISTICS POLICIES ADEQUATELY IMPLEMENTED?

Once reasonable unanimity of opinion is reached on the concepts that should govern logistics management and the policies embodying those concepts have been articulated, the policies are implemented. Logistics planning policies have been promulgated--some on a more widespread basis than others and with varying degrees of emphasis--for most of the concepts discussed in chapter 3. The next step in the process is to evaluate the adequacy of the implementation of those logistics policies that can have an important impact on the effectiveness of logistics management and that provide a basis for more economical operation of logistics functions.

Two primary logistics policies that are being implemented in varying degrees pertain to (1) the reduction of support costs through greater interagency or interservice logistics support and (2) the establishment of single logistics managers for discrete functions. Yet even where an agency has taken corrective action to implement these policies in response to GAO recommendations, shortcomings still exist.

Implementation of policy requires strong support and direction from top management and continuing emphasis at all organizational levels. Too often policies are not implemented effectively because these elements are lacking. Persistent parochialism must be overcome before goals can be achieved. No matter how fully the economy and efficiency benefits are demonstrated, the recipients of interagency or single manager logistics support resist implementation. All kinds of arguments are raised but the central theme is the same, they do not want to rely on someone else for their logistics services. These attitudes are not readily overcome, and unless they are aggressively pursued, implementation would remain at status quo or backslide. We will continue to seek ways to encourage the implementation of integrated logistics policies until desired goals are achieved.

Our emphasis in this area recognizes the axiom "you have to crawl before you can walk." The pinnacle of integrated logistics is single management. There are, however, few single managers and the transition to this concept is a gradual process. Short of single management, there are numerous opportunities to increase productivity and reduce support costs through greater interagency or interservice logistics support. Numerous activities within the Government have similar missions and must logically support similar equipment. DOD and civil agencies are flying planes, operating watercraft, using communications and navigation systems, and often accomplishing similar missions--

frequently within the same geographic areas. Yet, each agency usually (1) provides its own logistic support, such as aircraft overhaul, (2) maintains its own inventory of spare parts, and (3) operates its own facilities.

In our view, there is great potential for large savings and increased productivity by eliminating duplicate management of similar equipment and material. The Congress is also intensely interested in such areas--their objectives center principally on opportunities for reducing staffing.

GAO OBJECTIVES AND EMPHASIS

Our objectives in this area are to (1) increase Government agencies' productivity and reduce logistics support costs through increased application of proven logistics concepts and (2) identify areas/programs among the military departments and civil agencies that lend themselves to these proven concepts, and to demonstrate the potential for savings.

Generally, our ideas are drawn from and substantially built on those concepts addressed in the previous chapter, Can Alternative Logistics Concepts, Structures, and Policies Provide Necessary Mission Support at Lower Cost? Once a concept is accepted we monitor and evaluate the effectiveness of its implementation in this line of effort. To achieve these objectives, the following questions need to be addressed:

1. Are there additional logistics areas where proven concepts such as the single manager concept, reliability centered maintenance, etc. would be applicable?
2. How can existing "single manager" programs be more fully implemented or otherwise improved?
3. How can interagency support be increased among Federal agencies with similar missions, functions, equipment, or logistics support programs?
4. To what extent are military and civil agencies' claims of "military uniqueness" and "need for self-sufficiency" invalid reasons for negating interservicing or interagency support?
5. To what extent can the civil infrastructure be used for military support?
6. How can the resources of military activities which duplicate civil agency activities be employed to reduce civil agencies' resource requirements?
7. What military missions, equipment and logistics support programs could be supported more

effectively, efficiently or at less cost through interservicing?

8. What are the effects of civilianization issues on the military in peacetime and wartime?

Commonality of missions, equipment and logistics support programs is the key to increasing interservice or interagency support or applying the single manager concept.

During past program periods we concentrated on question 1--identification of new proven logistics concepts which were gaining acceptance. For example, we explored the reliability centered maintenance concept, which was successfully used by commercial sources, to determine its applicability to DOD maintenance programs. First, we convinced DOD to adopt the concept on fixed and rotary-wing aircraft. Now, DOD is implementing this concept in other areas such as ship and combat vehicle maintenance. Our future effort will include monitoring the implementation of this concept and continuing to look at the implementation of other concepts, such as the single manager concept, which have not been fully implemented (questions 1 and 2).

We will also concentrate on (1) identifying additional logistics areas where the single manager concept would be applicable within DOD (question 2) and encouraging DOD to make greater use of the interservicing concept (question 7) and interagency support agreements among Federal agencies (question 5) to reduce the Government's logistics support costs. We plan to concentrate on DOD because with the increasing costs to support new weapon systems and equipment as well as the complexity of the systems there is a continuing need to apply new methods to substantially reduce the logistics support costs.

Our secondary emphasis will be on monitoring the emerging new logistics concepts. For example, if time permits we will direct an effort into the area of civilianization (questions 5, 8, and 9). Currently, many civilians are needed by military field units, on-board ships, and at forward positions to maintain and operate systems. Yet, the current wartime policy is that civilians lives will not be jeopardized. In time of war the civilians may not be available to work as a result of individual choice or Government prohibition as set by the War Powers Act. This loss of civilian expertise at time of mobilization could impact mission performance.

CHAPTER 5

CAN LOGISTICS MANAGEMENT INFORMATION SYSTEMS BE IMPROVED?

A multitude of management reporting systems exist in the Federal Government to provide management at all decisionmaking levels with current and historical data on supply, storage, transportation, and maintenance activities. The importance attributed to data based information systems cannot be over-emphasized. Information from these systems is critical to decisions affecting day-to-day actions necessary to maintain visibility and control over the Government's multibillion dollar supply and maintenance activities. Failure to maintain control over these assets and the related production capability results in failure to satisfy consumer needs, acquisition of unneeded material, performance of unnecessary maintenance, additional transportation and storage costs, and ultimately disposal of new and unused surplus material at a fraction of its original cost.

In establishing new management information systems or refining existing ones, the changing demands for greater efficiency and economy of resources should be balanced against the system capability needed to support the operating plans of the Government activity. The design of management information systems should involve networks which consider all interfacing elements in concert and insure the appropriate operating and management information is available at the appropriate point of use in the logistics system.

The military services, the Defense Logistics Agency and civil agencies such as the General Services Administration and the Veterans Administration have made significant commitments to development of computer-based logistics systems. In some cases, the management information system is a common system utilized by many users (DOD and civil). For example, the Defense Logistics Agency, which operates the Government's cataloging system, is a Government-wide repository of identification, technical, and logistical information on some 5.8 million supply items used throughout the Federal Government. The information on supply items, source of supply, Government user specifications, etc., is readily available to all Government users who have a need for this data.

On the other hand, some data management information systems are special applications which primarily serve the program manager responsible for the operation. In this respect, the Navy's Material Maintenance Management System is designed to accumulate maintenance data on ships, aircraft and other major equipment items. The Air Force's Maintenance Management Information and Control System is a base level system for controlling maintenance activities.

Other special systems, such as the Army's Logistics Intelligence File which provides intransit item visibility on requisitioned material, are being looked at as candidates for overall DOD application.

GAO OBJECTIVE AND EMPHASIS

Our objective in this area is to improve the effectiveness and accuracy of management information systems being used by logistics managers. Recognizing the broad nature of our objective, the following questions need to be addressed:

- (1) Are existing management information systems for intransit visibility of material duplicating information available through other systems?
- (2) Are proposed new intransit visibility and maintenance information systems giving consideration to systems or segments of systems already in place?
- (3) Do existing or proposed work measurement systems for maintenance in Government facilities provide meaningful, timely reports which management can use to measure performance and make decisions?
- (4) Do systems accumulate accurate and reliable data to facilitate maintenance planning and management that will assure timely repair and upkeep of equipment?
- (5) Can overall efficiency and economy be achieved through increased standardization and improvement of similar logistics information system applications?
- (6) Do the logistics support and management information systems provide appropriate, reliable and accurate data and management reports on the range and quantities of items needed and available to satisfy needs as well as on the effectiveness of satisfying those needs?

Our recent past reviews in other Logistics Management areas identified certain deficiencies in logistics data systems such as the reliability of data and possible duplication of data between systems (questions 4, 5 and 6). For example, our reviews of the integrated logistics support planning for various major Defense weapons systems raised concerns about (1) the compatibility of management information system, (2) the accuracy and reliability of usage data for equipments, (3) the duplication of information in more than one data system and (4) the lack of timeliness in providing current logistics data to managers.

Our emphasis in this area will be to build on the above information we have already obtained concerning the possible weakness in the management information systems. We will make indepth analyses to identify and correct the accuracy of the information (questions 4 and 6) and will seek ways to eliminate or at least minimize the duplication of information through increased standardization of systems (question 5).

CHAPTER 6

CAN THE DETERMINATION OF WHOLESALE NEEDS BE IMPROVED?

The Federal Government has a substantial investment in inventory stocks at the wholesale or depot level. The DOD and GSA wholesale inventories consist of about 4 million line items valued at over \$59 billion--almost all of which are owned by DOD.

The primary objective of effective inventory management is to have the proper material on hand when needed and in the required quantities--neither too much nor too little. If inventory levels are too low, the supply systems of Federal agencies cannot respond to customer needs, and costly and wasteful efforts must be taken to recover from out-of-stock positions. Conversely, if levels are too high, not only has money been spent on inventories which may never be used but a whole train of unnecessary expenditures--more/larger warehouses, more transportation, personnel etc.--is set in motion and large excesses are generated which must be purged from the system at severe financial loss.

Since the mid 1970's most of our work in the inventory requirements determination area has been dedicated to the retail, not wholesale systems. Recent Congressional actions have given impetus to our renewed interest in the wholesale systems.

The current mood of Congress is to increase Operation and Maintenance (O&M) funding for programs which will improve the readiness of the military forces. In addition, the Armed Services Committees have recently included O&M funding as part of their funding authorization process. If funding is increased, and O&M funding is going to receive additional scrutiny, then it is imperative that we continuously inform Congress as to whether constrained monies are being spent in a most economical manner and on those requirements which will have the most direct effect on force readiness.

The area of requirements determination is dynamic, and there are a multitude of agencies, management structures, systems, procedures, assumptions, factors and managerial techniques used in the development of wholesale inventory requirements. This variety exists between agencies, "sub-agencies" (military services within DOD), commodities (ammunition, medical, major equipments, replacement parts, etc.), and within commodities such as replacement parts, i.e. is the part repairable or expendable.

Is all this variety necessary? Is it necessary for all agencies and sub-agencies therein to have their own, separate and distinct systems for determining requirements? Why do these agencies use different assumptions/factors for computing requirements--what

makes them unique; what is the degree of commonality? As outlined below, we build on these type questions to achieve our objectives in this area.

GAO OBJECTIVES AND EMPHASIS

Our objectives are to (1) improve the agencies' policies and procedures for determining wholesale inventory needs, (2) ensure that the best managerial approaches/philosophies/techniques are identified and implemented where practicable on an agency-wide basis, (3) encourage more effective logistics support through the development of meaningful effectiveness-measurement criteria, and (4) promote, to the maximum extent feasible, the development of uniform or standardized requirement determination systems.

To achieve these objectives the following basic questions need to be addressed:

- (1) What systems and procedures exist to insure that requirements are sufficient to meet the needs and yet are not excessive, i.e., when and how much to buy?
- (2) Do managers have access to and use accurate and up-to-date information (such as procurement and administrative leadtimes, order/ship times, safety levels, etc.) to determine logistics requirements?
- (3) Do systems exist to insure that program changes affecting requirements determinations are communicated to managers in a timely manner?
- (4) Are there adequate control and review levels to preclude arbitrary changes to the basic data elements used in the determination process?
- (5) Do managers have sufficient visibility and control over assets in the logistics system to insure that available assets are redistributed in lieu of the acquisition of additional needs?
- (6) Are the agencies' policies and procedures for determining wholesale needs reasonably uniform? What makes them unique? What are the common threads?
- (7) Which policies and procedures are most effective? Is there applicability elsewhere?
- (8) Do agencies communicate with each other and/or with the private sector regarding improved methodologies for determining needs?

- (9) Do the determination systems provide for procedures to realistically determine and identify the priority needs, and are they being satisfied?
- (10) Are the objectives of the managers who determine requirement levels compatible with the customer's objectives, and are the objectives' effectiveness measured accordingly?
- (11) Can the determination systems, policies and procedures be more uniform or standardized and still satisfy needs in a most economical manner?

Recent congressional interest and actions in military funding, especially O&M funding, parallel our renewed interest in the wholesale determination of needs area. The importance of this interest is highlighted by the fact that for the next planning periods, we are breaking out the wholesale and retail requirements determination area into two separate lines, and substantially increasing the planned staff years dedicated to the wholesale systems.

We must constantly be alert to the fact that, because DOD logistics management is everchanging and there is little uniformity among and within the services, as we achieve corrective action for a particular system deficiency, other logistics issues arise and need to be addressed. For that reason it is envisioned that our planned efforts will not in the immediate future solve all the evolving system-wide problems on a service command, or service-wide basis.

If congressional interest remains high, we plan to review all of the key military and civilian systems if necessary, to achieve our goal of acquiring the most economic, uniform or standardized systems. In our ongoing work and planned assignments our main thrust in reviewing the policies and procedures of selected agencies' systems for determining wholesale requirements is directed toward improving these systems. So we emphasize questions 1 through 5 with coverage where appropriate for questions 6 and 7.

We may also address some of the other questions where appropriate in our assignments; or, as with one of our planned assignments, emphasize question 11--this is feasible because of past work in an area, and acceptance of our recommendations by one of the subagencies.

CHAPTER 7

IS INTEGRATED LOGISTIC SUPPORT PLANNING ADEQUATE TO ASSURE THAT COMPLEX WEAPONS SYSTEMS' GOALS ARE MET AND LIFE CYCLE COSTS ARE OPTIMIZED?

Logistics support costs for Department of Defense weapons systems and equipment have increased significantly in recent years, with life cycle support costs for many systems far exceeding the system's acquisition costs. Resources for "logistics" accounted for over one-third of the Department of Defense's fiscal year 1981 budget request--\$59 billion of \$159 billion requested. The \$59 billion request represents four general categories of logistic support (1) peacetime material readiness--63 percent, (2) facilities support--18 percent, (3) logistics management and support--10 percent, and (4) combat sustainability--9 percent. The importance of logistics funding has been underscored by recent Administration concerns that funds being congressionally earmarked for the procurement of new systems could be better used to support existing systems. In recent reports we have also shown that the potential exists for large savings if alternative logistics concepts were considered for some weapons systems.

Defense logistics planners have long recognized the need for a systematic and structured approach for early consideration of logistic support concepts and costs and the need to project these logistics factors throughout the life cycle of the weapons system. The Department of Defense has developed a formal planning procedure called the Integrated Logistic Support (ILS) plan which attempts to link development and production planning with deployment and utilization planning. This has the objective of establishing long-range milestones and phased planning of important logistics events for weapon systems as they move into the DOD inventory.

The major logistic elements addressed during ILS planning are (1) maintenance strategy, (2) manpower and personnel, (3) supply support, (4) support and test equipment, (5) training, and (6) facilities. Under this concept, the logistics elements are planned and integrated early in the design stage of new weapons systems rather than after the design has stabilized and changes are apt to be costly. Logisticians, as well as operators are introduced into the planning process and encouraged to contribute from their experience in supporting and using earlier generations of weapons systems.

Effective ILS planning is a rigorous process requiring analysis of the cost of various logistic concepts and the interrelations of the logistic elements. Logisticians use a variety of quantitative and qualitative techniques such as Logistics

Support Analysis, Optimum Level of Repair Analysis and Reliability Centered Maintenance Logic to develop their plans.

GAO OBJECTIVES AND EMPHASIS

Our primary objective in this area is to improve ILS planning to assure that various weapon systems are adequately supported and can meet operational objectives without incurring excessive or unnecessary logistics life cycle costs. A secondary objective is to determine the extent to which the ILS concept could result in reduced logistics costs for non-defense agencies.

Recognizing that logistics costs continue to increase and ILS planning has not been as comprehensive as it should be, the Department of Defense has placed increased emphasis on logistics planning by issuing new directives in 1980 stressing ILS planning as an inherent part of the acquisition process and life cycle use of equipment. However as demonstrated by our recent reports on ILS planning for the Trident submarine and the F-18 and F-16 aircraft and ongoing reviews of the XM1 tank and FFG-7 guided missile frigate only limited progress has been made in ILS planning and the use of its analytical techniques.

Because many new weapon systems and equipments are under development and significant opportunities exist to reduce logistics life cycle costs we believe this area continues to warrant GAO's close attention. Specific questions which must be addressed to attain our overall objectives include:

- (1) Have the Military Services established and effectively implemented consistent and comprehensive ILS policies and doctrines?
- (2) Have logistic support considerations been taken into account early enough in the weapons system acquisition process to increase the systems' supportability and reduce life cycle costs?
- (3) Are the Services implementing systems engineering programs--such as Logistics Support Analysis, Optimum Repair Level Analysis, and Reliability Centered Maintenance--to provide visibility of operating and support costs as a major facet of systems acquisition management?
- (4) Have logistics support alternatives been selected that complement weapons system design choices and capture potential life cycle cost payoffs?
- (5) Have logistic support plans been developed which address each of the various logistic elements and will these plans result in adequate, timely cost effective logistic support?

- (6) Are the services effectively exercising Configuration Management to insure that configuration control procedures include provisions for integrated logistic support planning?
- (7) Have existing supply and maintenance support, test equipment, and other logistic support facilities and equipment, been considered before defining requirements for additional capability?
- (8) Does logistic support planning for co-produced or foreign produced weapon systems adequately reflect overseas and CONUS basing requirements?
- (9) Can other federal agencies apply the ILS concept to reduce their logistic support for equipment or material they are procuring or supporting?
- (10) Have military services logistics review groups been effective in their evaluations of logistics plans?
- (11) Are logistic support concepts having multiservice application being used to their fullest extent?

In the past our strategy was to gain a knowledge of the ILS process as it was implemented in the various military services and to reduce logistics support costs as the opportunities occurred. We accomplished this by doing broad reviews of ILS planning for specific weapon systems in each of the Military Services. These reviews addressed questions 1 through 8; however, they did not afford an opportunity for a detailed examination of each question.

Building on the knowledge base developed from past work our future strategy will be to examine the ILS process from several perspectives. Our approach will be to concentrate on service-wide implementation of the ILS concept (questions 1, 3 and 10) and on system by system analysis of ILS planning (questions 2 and 4 through 8). We may also plan to explore whether the ILS concept has application in nondefense agencies (question 9) and to examine certain logistics having multiservice application (question 11).

The ILS concept is relatively new and involves broad new concepts to logistics planning. The Services do not have enough personnel experienced in the ILS concept and its associated techniques. Consequently its effective and widespread use has been slow to evolve. Recognizing these factors we do not expect to reach our overall objectives for this area in the near term. However, we do expect to see significant progress in the uniform application of the ILS concept and greater use of the analytical techniques associated with the concept.

CHAPTER 8

CAN INVENTORY MANAGEMENT AT THE USER AND RETAIL LEVEL BE IMPROVED?

Inventory management at the retail level has as its objective the maintenance of an optimum level of supplies and repair parts to satisfy customers' demand, to avoid out-of-stock situations, and, because of resource constraints, to reduce the Government's investment in these inventories. To achieve efficient and economic levels, harmonious coordination between people and the logistic systems must be achieved.

There are a number of activities which must be properly performed to assure that sufficient, but not excessive quantities of stocks are available where and when needed. For example, need for material must be accurately recorded and reported, availability of materiel from other than parent organizations should be recognized and effectively utilized, user needs must be continuously monitored to keep them current and to assure that demands placed upon the wholesale system remain valid, materiel needs must be prioritized to insure the greatest impact on unit readiness, and the timing of materiel availability should be matched with the programmed maintenance or repair action--such as the availability of materiel to support equipment modification programs.

These types of inventory management activities are not exceptionally complex. However, problems often arise because the numerous agencies have widely different roles, missions, and objectives which they perceive as precluding complete uniformity or standardization of the supply systems. In addition, problems arise because of the magnitude of inventories, tremendous volumes of transactions, numerous storage locations, distances involved, lack of continuity of personnel at all levels, and frequent changes in the supply systems.

Within DOD, changes to the operation of the logistics system and the lack of continuity of operating personnel has resulted in a system that is almost always in a constant state of flux. For example, Army combat divisions are equipped with an automated system known as Division Logistics Systems (DLOGS). But, the Army is currently testing a new system to replace DLOGS.

At the same time, installations and corps are equipped with an automated system known as Standard Army Intermediate Logistics Systems (SAILS). The Army is refining this system to a new version--SAILS ABX. SAILS ABX is an expanded version of the Army's standard automated system for managing stock control and financial accounting functions between the wholesale and direct support unit levels. The expanded system will be extended to 25 Army installations by the end of 1981. At the time the extension was announced,

the Army also announced a proposed replacement for the SAILS system. The proposed replacement system, tentatively titled the Standard Army Retail Supply System (STARSS), would be designed to operate in wartime with the same equipment and procedures as in peacetime.

The Navy, the Air Force, the Coast Guard and other agencies operate under other supply systems which also often change due to technological advancements, and are subject to operational preferences.

While the systems for managing stock control and financial accounting functions may frequently change, management officials are still responsible for economically attaining the purpose and objective of their agencies. The increasing magnitude of Federal expenditures requires that every reasonable means be sought to obtain full value for each dollar spent.

The Federal Government's investment in these inventories is large. For example, as of September 30, 1978, principal items in hands of DOD users were valued at \$146.9 billion. The value of secondary items (components, repair parts, etc.) being held by users is not readily available. However, it is sizeable. For example, the value of such stocks aboard surface ships is estimated at \$1.4 billion, and aboard submarines at about \$300 million. With the Army, at the intermediate level (divisions, corps, and installations) the stock level value is estimated at \$833 million.

GAO OBJECTIVES AND EMPHASIS

Our overall objective in this area is to improve inventory management by (1) enhancing the capability of the agencies to better meet users' needs, and (2) identify areas where improved management techniques would effect a reduction in the Government's investment in inventories. To do this, the following questions, which center on the interface between the systems and people, need to be addressed:

- (1) Do the logistics systems insure that needs are accurately determined, recorded, and reported, and that optimum quantities are available to meet those needs?
- (2) Do the logistics support systems insure that needed quantities are acquired in the most economical manner?
- (3) Are identified needs communicated to the appropriate source in a timely manner?
- (4) Do the logistics systems provide procedures for realistically determining and identifying the priority of needs?

- (5) Do the logistics systems insure that receipts of items are immediately known and available to satisfy needs?
- (6) Are controls adequate to insure that a continuing need exists when the request could not be initially filled?
- (7) Are sufficient funds available at the various logistics support levels to satisfy valid needs in a timely manner?
- (8) Are materiel and program needs efficiently coordinated to insure Government-wide utilization of stocks?
- (9) Have personnel been properly trained and do they understand and effectively carry out the logistics support systems' procedures?
- (10) Can logistics system procedures be standardized to avoid the disruptions to operations that often result from personnel rotations?

During recent years we have devoted significant effort in evaluating whether needs are accurately determined; whether optimum levels are maintained to meet those needs; and whether the quantities of stock needed are acquired in an economical manner. (Questions 1 and 2). We have been successful in getting the military services and the TVA to accept our recommendations for improved supply management procedures. For example, in past efforts relating to user needs on board Navy ships we have reported that for specific classes of ships--submarines, carriers, destroyers, etc.--ship requirements were not being determined in a timely and accurate manner and that substantial amounts of excess materiel were generated which should have been redistributed to satisfy other Navy needs. Such actions would result in an overall reduction in the Government's investment in inventories. For the aircraft carriers alone, measurable savings of \$130 million were realized. In another major effort we were able to get the Army to recognize weaknesses in the way its personnel implemented logistics systems procedures (Question 9) by demonstrating a lack of control over property in custody of military units.

Our future efforts will be directed toward evaluating elements of the various supply systems to address the questions outlined above. For example, an ongoing review of the Coast Guard addresses determination of need and stocking to meet those needs (Question 1); whether stocks are acquired economically (Question 2); and Government-wide utilization of stocks (Question 8). An ongoing review of the Air Force modification program addresses economical acquisition of spare parts already available in the Air Force and Defense Logistics Agency (Question 8).

We also have a review underway on supply support provided by the Navy's automated surface ships, plus actions taken by the Navy in response to our submarine and carrier reports. In addition to addressing supply management on automated vessels, our report will present to the Congress an overview of shipboard supply management for the entire Navy fleet.

CHAPTER 9

DO STORAGE AND PRESERVATION SYSTEMS PROVIDE ADEQUATE CONTROL AND PROTECTION OF MATERIAL INVENTORIES?

In large part, the material items needed to support the Government's military and civil programs are acquired some time in advance of the time they will actually be used. This allows the Government to benefit from cost savings from quantity procurements and to position the material in a way that distribution to ultimate users can be made promptly and economically. However, it also requires the Government to operate storage facilities to hold the material at various distribution levels until it is issued to fill needs.

Material inventories of the Federal Government represent constant investment of many billions of dollars, as shown earlier in this program plan. The bulk of these inventories are in the possession of the Department of Defense and the General Services Administration; however, many other agencies maintain very substantial investments in inventories. Recent data shows that the Government's wholesale material distribution systems included 67 general material storage facilities, 81 bulk petroleum product storage terminals, and 15 ammunition storage depots. More than 20,000 personnel were employed to operate these facilities, which processed more than 15 million receipts and 37 million issues of material annually. The investment in real property and equipment at these facilities and their costs of operation are substantial. In addition, large quantities of material are stored by organizations at intermediate and using levels throughout the Government.

The effectiveness of material storage operations is measured by their responsiveness in issuing requested material in the proper timeframe and in a condition which will satisfy the users' needs. Customers are adversely affected by delays in the receipt of needed material or by the receipt of material in improper quantities or conditions. Therefore, throughout the storage period, the availability of material for issue must be accurately reflected on the inventory control records to facilitate prompt and proper issue. At a minimum, these records must reflect the correct identification, quantity, condition and location of material being stored. Whenever any of these elements change, because of receipts, issues, rewarehousing, material condition change or inventory adjustment, such changes must be promptly and accurately posted to the inventory records.

Effectiveness and economy in storage operations are dependent on many factors. The layout of the storage area, the configuration of material handling systems, and the scheduling of work

tasks must promote efficient space, equipment and personnel utilization to insure an uninterrupted flow of material into, through and out of the storage facility. At the same time material should be protected from theft or deterioration through effective inventory and security programs, periodic inspections, and adequate quality control, packaging and preservation measures. In view of the constantly rising costs and the resultant need to economize, storage facility managers must stay abreast of and apply appropriate technological advances.

GAO OBJECTIVES AND EMPHASIS

Our overall objective in this area will be to improve the effectiveness and efficiency of the Government's material inventory storage and preservation systems.

To achieve this objective, the following questions need to be addressed:

- (1) Are the types, quantities, locations and conditions of items of material in storage accurately reflected on the inventory management records?
- (2) Are receipts, issues, and preservation or other actions affecting material in storage performed promptly and efficiently and reported immediately to inventory managers?
- (3) Are physical inventory performance standards reasonably demanding and are they being met by storage activities?
- (4) Are physical security conditions at storage activities adequate to minimize losses of material?
- (5) Are sufficient funds and management attention devoted to the inspection, rotation, and care of material in storage, including material with relatively short shelf-lives, to minimize the need to recondition or dispose of material?
- (6) Are storage facilities configured and equipped with adequate material handling capability to ensure prompt, efficient receipt, storage and issue of material?
- (7) Is material in storage packaged and preserved in a cost-effective manner to ensure adequate protection and to prevent costly repacking before or after it is shipped to users?

We currently have underway a general survey involving all the military services and GSA which will compare and contrast the different methodologies, performance standards, and effectiveness measurement systems employed by the different organizations involved in storing general supplies to identify apparent opportunities for improved management which will increase effectiveness and economy. The results of this survey will direct our future review efforts in the area.

In the meantime, we plan to undertake a series of reviews intended to address one question in this area that we want to emphasize question 1--Are the types, quantities, locations, and conditions of material in storage accurately reflected on the inventory management records?

The overview survey discussed previously is intended to evaluate the effectiveness of the military wholesale storage activities as they are presently functioning. However, we know that in the not too distant future these activities will be adopting new automated warehousing technology that is rapidly becoming available in the commercial sector. Therefore, we also plan to undertake another overview survey (addressing question 6), before the Government becomes deeply involved in acquiring this new technology.

CHAPTER 10

IS THE DISTRIBUTION OF MATERIAL AND THE MOVEMENT OF PERSONNEL DONE EFFICIENTLY?

More than twenty percent of the Gross National Product of the United States is spent distributing material and moving people worldwide. This Nation's economic growth, well-being, social structure, pattern of living, and National Defense--all hinge on its distribution and transportation systems. Distribution systems typically include activities and functions, such as (1) plant and warehouse site selection, (2) order processing, (3) inventory control, (4) warehouse operations, and (5) transportation.

For a distribution system to operate with optimum efficiency, each transaction or happening must be looked at in terms of its impact on the total system. Economies of time or resources realized in one segment could very well penalize another segment and could actually result in diseconomies. For example, it would do little good to obtain highly favorable transportation rates on huge volumes of material only to have the savings eaten up by storage costs at destination. Also, savings realized by consolidating depots could very well be offset by longer response times to orders. Factors, such as susceptibility to loss and damage or added per diem cost, must be weighed against the advantages of lower rates when deciding on which distribution method or transportation mode is more efficient.

The Government is a major user of the Nation's distribution and transportation resources. Each year it spends over \$8 billion to distribute its material and move its people. It has invested billions more in depot facilities, storage warehouses, and material handling equipment.

Actions taken by Government managers impact directly and significantly outside of Government. For example, Government systems measure the quality of service rendered by commercial firms involved in the distribution and transportation process and they identify areas in need of improvement. Such improvements are enjoyed thereafter by everyone using the services. Likewise, rate analysis by Government managers frequently results in rate reductions which are enjoyed by all users of the service. In other words, anything the Government does in terms of distribution and traffic management can impact on other than Government interests and could very well influence the price paid for certain commodities by the general public.

Congressional oversight of the billions of dollars spent on distributing material and moving people is divided among many committees and subcommittees. Foremost are the appropriations committees which continually seek assistance from GAO in the form

of specific reviews and requests for assignment of GAO staff members with distribution management expertise to committee staffs for varying periods of time. The transportation industry, through its powerful lobbies, is constantly bringing pressure on the Congress, which in turn looks to GAO for assistance.

GAO OBJECTIVES AND EMPHASIS

The immenseness and complexities of distributing Government material and moving its personnel worldwide, coupled with dynamic innovations and drastic shifts within the transportation industry, offer unlimited opportunities for improvements and dollar savings. However, the Government is organized in a manner that separates supply managers from traffic managers and buyers from users. This often results in uneconomical and inefficient operations.

GAO, on the other hand, is in the unique position of being able to look at the overall picture and evaluate multiple decisions to ensure that Government material and personnel are actually being moved in the most efficient manner.

In assessing the effectiveness of the Government's distribution and transportation operations, our overall objective will be to identify areas where management improvements are needed to insure that Government material is distributed and personnel are moved in the most efficient and economical manner. To achieve this objective, we have to address the following questions:

- (1) Is material stored at the proper locations?
- (2) Are requisitioning priorities proper, and if not, what unnecessary costs are involved?
- (3) Are shipments of material moving at the least cost consistent with user needs?
- (4) Is the Government adequately protected against intransit loss and damage?
- (5) Is the movement of people managed so as to achieve maximum benefits for the Government?
- (6) Have new concepts and techniques in the transportation industry been given adequate consideration?
- (7) What effect has deregulation within the transportation industry had on the quality or cost of service to the Government?

In the recent past we have put significant effort into the proper positioning of material and the validity of requisitioning priorities (Questions 1 and 2 respectively). For example, we have been successful in getting the Defense Logistics Agency, the Army, the Air Force, and the General Services Administration to accept our recommendations to reposition depot stocks closer to the using activities and/or to increase direct deliveries by the vendor. We also have been able to get DOD to recognize weaknesses in the distribution of medical supplies--including selection of storage sites--and in the management of cold storage facilities. In addition, we have done comprehensive reviews of military procedures for assigning requisitioning priorities to material shipments.

Therefore, our major thrust in this area in the near future will be to see whether shipments of material are moving at the least cost consistent with users needs. (Question 3) We will concentrate on this question because continuing and almost daily changes in the distribution and transportation industries complicate the management of an area where billions of dollars are expended by the Government each year. Significant improvements and cost savings have resulted from our past work in this area, but the great potential for further improvements make this a must area for continued emphasis by GAO.

Our second emphasis will be on new concepts and techniques in distribution and traffic movement. (Question 6) These offer the potential for not only increasing system efficiency and lowering costs, but also for reducing the personnel required to operate and administer a distribution system. We will constantly be looking at innovations in the transportation industry to see if they have application in Government programs.

Although our major thrust or emphasis will be directed to the efficient movement of material and to innovations in the transportation industry, we may devote some time to answering the other questions set forth under our objectives, particularly where the opportunity exists for immediate and significant improvements in the distribution process.

CHAPTER 11

CAN IMPROVEMENTS BE MADE IN THE UTILIZATION OF EQUIPMENT TO REDUCE EQUIPMENT REQUIREMENTS?

Government agencies have billions of dollars invested in equipment. New equipment is constantly entering inventories and changes in missions and scenarios cause equipment usage potential to change overtime. Effective utilization of equipment, within and between Government agencies, is a must if the Government's investment is to be kept to the minimum level necessary to assure acceptable performance.

Our work in this area is governed primarily by either known congressional interest in specific equipment programs or the large amounts of funds expended on the procurement and maintenance of selected equipment. As previously mentioned, the Federal Government has billions of dollars invested in equipment. For example, as of September 1978, DOD alone owned equipment valued at about \$162 billion. Comparable figures are not readily available for civil agencies. With the significant investment, and the potential for savings noted in past work, we intend to continue to devote effort where potential savings appear most likely.

GAO OBJECTIVES AND EMPHASIS

Uneconomical and ineffective utilization of equipment can occur in a variety of ways and can result from inadequate management attention at various points in the equipment's life cycle. In general, our attention must be directed to the entire life of the equipment, from the earliest decisions to bring equipment into inventories, all the way to decisions to dispose of the equipment.

Our overall objectives in this area are to improve the utilization of equipment to reduce equipment requirements by insuring that (1) agency equipment requirements determination process ensures that equipment requirements are based on valid usage criteria, (2) agency requirement determination processes include advancing state-of-the-art training, maintenance, and other capabilities, and (3) agency equipment usage policies and procedures ensure that maximum utilization is attained for equipment on hand.

To achieve the above objectives, the following four basic questions need to be addressed:

- (1) Are the requirements determinations for recently fielded, but new major end item procurement programs, based on adequate, reasonable, and complete data?

- (2) Do the systems for determining major-item requirements for combat units, i.e., tables of organization equipment (TOE)-type systems, ensure that the requirements reflect the most current missions and state-of-the-art logistics needs?
- (3) Are the policies and procedures for developing high-cost, secondary-type item requirements (aircraft/tank engines, modification programs, etc.) designed to promote economies and efficiencies in the levels of inventories on hand?
- (4) Do the requirements determinations for, and in support of fielded established major end items a) promote effective utilization, b) reduce the potential for excesses, and c) ensure that less than effectively utilized equipments are not receiving an unrealistic share of logistic support?

Because of the number and variety of equipments within the Government, the frequency with which new, expensive equipments enter the inventories, and the variety of systems used in determining equipment requirements, we cannot completely satisfy our objectives in the near term. We can and have, however, obtained some improvements in the utilization of equipment in previous studies.

We have issued several reports during recent years addressing question 1. For example, in July 1980, we issued a report (LCD-80-83) which synthesized for congressional hearings our concerns regarding the requirements for aircraft intended for noncombat missions, such as training, peacetime attrition, and backup during depot maintenance. We estimated that as much as \$6.9 billion could be saved by limiting the number of noncombat aircraft to those that can be adequately justified. We will work closely with DOD and congressional committees to push for implementation of our past recommendations, which could result in substantial dollar savings.

We plan to concentrate on additional targets of opportunity by addressing questions 3 and 4. In addressing question 3 we will evaluate the policies and procedures for developing high-cost, secondary-type items requirements and equipment modifications because based on past work they offer the greatest potential for improvements and savings.

Our second emphasis will be on the requirements determination for, and in support of fielded, established major end items (question 4). We have performed many assignments which were targets of opportunity in the area of equipment utilization within the civilian sector (such as search and rescue aircraft, administrative-type aircraft, motor pools vehicles, etc.) and now we plan to emphasize reviews of military equipment. This line of effort question is one which will continue for an indefinite period of time because of the large numbers and variety of equipment currently in inventory and entering the system each year. Significant improvements and cost savings have resulted from our past work in this area, but there are numerous other targets of opportunity available for realizing significant dollar savings while at the same time improving the effectiveness of military combat units.

CHAPTER 12

ARE EQUIPMENT MAINTENANCE PROGRAMS AND PROCEDURES ACHIEVING OPTIMUM EFFICIENCY AND EFFECTIVENESS?

Federal agencies require equipment in good working order to be able to effectively perform their mission. Therefore, they must have maintenance programs to assure that timely repairs and servicing are accomplished on equipment such as aircraft, weapons, vehicles, ships, industrial machinery, and general support equipment. Although we do not know the actual extent of maintenance programs in the Government, all agencies are involved. One major participant, the Department of Defense, estimates that it spends in excess of \$20 billion annually for maintenance.

Maintenance is the practice of (1) returning nonworking or inoperable equipment to full working condition or (2) extending equipment life through regular servicing. It ranges from mere checking the oil of a vehicle by the user to complete overhaul--or modernization--of major items, (such as aircraft, ships, tanks, radios, railroad cars and locomotives) at maintenance shops or industrial facilities.

The maintenance functions performed by Federal agencies can be classified into one of three categories or levels of maintenance reflecting the degree of complexity of the maintenance work performed. The levels are organizational (the operator servicing equipment) intermediate (component repair) and depot (the major repairs or overhauls).

Maintenance warrants our continuous attention because of the magnitude of costs in this area, continual change as equipment is updated or its use changes, the continual congressional interest in a broad range of maintenance issues, and the impact it has on driving a wide range of logistics requirements for people, training, facilities, equipment and repair parts. The Congress has been concerned with the problems the military has had keeping up with its maintenance workload since the Vietnam conflict. This has occurred despite extensive increases in the maintenance budget and significant reductions in the numbers of equipments used daily. Specific areas of concern have been (1) ship maintenance which accounts for \$5.4 billion of the budget, (2) the proliferation of Air Force aircraft component repair resources in support of new aircraft systems, (3) the impact of critical parts shortages on maintenance programs, and (4) recent missions which were aborted because of maintenance problems with equipment.

Federal agencies appear to have proliferated maintenance resources to make sure capability will be available when needed. This has resulted in funding shortfalls which have actually hampered the overall maintenance effort.

GAO OBJECTIVES AND EMPHASIS

Our objective in this area is to assure that existing equipment maintenance programs, practices, and procedures are as efficient and effective as possible. To achieve this objective, the following questions need to be answered at all three levels of maintenance:

- (1) Are maintenance resources (skills, facilities, equipment, and repair parts) effectively matched with maintenance requirements?
- (2) Are proven maintenance practices effectively transferred among Federal agencies and private industry?
- (3) Is maintenance being performed by the appropriate Government entity to assure optimum use of resources?
- (4) Is private industry being used for maintenance when feasible and economically beneficial?
- (5) Is the accomplishment of maintenance timely enough to assure Federal assets are available when needed?
- (6) Is the interval-oriented maintenance being performed necessary or would a use-until-fail policy be more appropriate?
- (7) Should more maintenance be handled at other levels?
- (8) Can automation improve maintenance quality, timeliness, and economy?
- (9) Are backlogs being effectively managed?
- (10) Do current maintenance information systems measure performance against established standards and provide the information necessary for effective management decision making?

Our future efforts will be driven largely by several recent congressional committee requests. Generally, the requests address questions 1, 4 and 10 at the depot level of maintenance.

In addition, we plan to devote some effort to continuing our objective of improving the effectiveness and efficiency of maintenance functions. Our overall approach to achieving these objectives is to systematically review the effectiveness and efficiency of maintenance performed at the various levels of maintenance as it pertains to the more important major systems or groups of similar systems.

In the past we have focused a large part of our efforts on evaluating the effectiveness and efficiency of the depot maintenance work within DOD, concentrating on questions 1, 5, 7, and 9 because they are the key questions which need to be addressed in this area. We concentrated on the depot level primarily because of the large defense investment in facilities, equipment inventories, manpower, etc. and the continuing congressional interest in depot maintenance operations.

In the near future we plan to evaluate the effectiveness and efficiency of the intermediate level maintenance for Army combat vehicles. This is a natural follow-on to our past efforts which addressed questions 1, 5, 7, and 9 at the organizational and depot levels. As a result of our December 1978, report on the organizational level maintenance for combat vehicles the Army has initiated a number of actions to improve the maintenance functions. In July 1980 we completed our evaluation of the depot maintenance of combat vehicles again addressing the key questions (Questions 1, 5, 7 and 9).

We will evaluate the effectiveness of the Army's intermediate level of maintenance, follow-up on Army actions taken as a result of our past efforts at the other levels, and prepare an overall evaluation of the Army's total maintenance program for combat vehicles.

CHAPTER 13

IS UNNEEDED PROPERTY MANAGED PROPERLY

The vast range and large quantities of material acquired by the Government agencies, the complexities of managing this material, and changes in requirements inevitably result in the generation of material which is not needed by the activity possessing it. As discussed earlier in this program plan, effective requirements determinations, inventory management, distribution, and storage and preservation procedures should minimize the generation of unneeded material and, hopefully, restrict it to reasonable amounts. However, experience over the years has shown conclusively that significant amounts of unneeded material will be continuously generated within the Government.

Material determined to be unneeded by the activity having possession of it is termed long supply material; this material becomes excess when and if it has been determined to be unneeded anywhere by the Federal agency which owns it; excess material becomes surplus to the Government after it has been screened and found to be unneeded by all Federal agencies. There is no available data showing the amount of long supply material generated by civil agencies; however, in fiscal year 1979, DOD generated \$3 billion dollars of such material. In the same year, \$3.2 billion of excess material was generated by DOD and civil agencies. Civil and military material determined to be surplus during the same year was valued at \$2.4 billion.

GSA and DOD have policies and operate rather comprehensive systems intended to achieve the most economical and effective management of Government long supply, excess, and surplus material. Basically, these policies and systems are designed to:

- Retain for use that portion of the long supply material on hand that can be economically retained for use.
- Redistribute excess material to meet valid needs of other Government agencies or eligible Government-sponsored activities, such as grantees or contractors.
- Purge surplus material from Government inventories through (1) donation to eligible tax-supported or tax-exempt non-Federal organizations, (2) public sale for the maximum net monetary return, or (3) destruction or abandonment when necessary.

Government officials who have possession of long supply material often consider it to be of little value or importance and, as a result, frequently do not account for and manage it with the

diligence accorded other material. This was brought to light recently in hearings of the Senate Governmental Affairs Subcommittee on Federal Spending Practices and Open Government when it was disclosed that some Federal agencies in the Washington, D.C., area were disposing of unneeded office furniture at local dumps. Also, agency officials possessing long supply material are often not motivated to report its existence for fear of being accused of acquiring unneeded material. Further, there is, among many Federal officials, a lack of aggressiveness in trying to satisfy their agencies' material requirements by acquiring excess material, even though they are required by law to do so. These conditions tend to inhibit what is needed most--aggressive efforts to (1) redistribute the material to fill valid requirements of other authorized organizations, which otherwise may buy new material and (2) realize the maximum sales revenue for material which cannot be redistributed.

GAO OBJECTIVES AND EMPHASIS

We have three basic objectives in this area. The objectives, and the questions which need to be addressed to achieve them are set out below.

1. Ensuring that Federal activities have effective, systematic methods of accurately identifying excess material in their possession and affecting its recycling or redistribution for use within the Government, thereby precluding as much new procurement as possible.
 - a. Do material managers periodically analyze their inventories to determine the extent to which they exceed current requirements?
 - b. Do material managers have effective procedures to determine which portion of their long supply material should be retained for use and which portion should be declared excess and reported for possible redistribution?
 - c. After determining how much of their long supply material to retain, do inventory managers promptly report to the appropriate organizations excess material available for redistribution?
 - d. Do Federal activities have effective procedures to identify and recover for sale or reuse valuable portions or components of used items of material, such as precious metals and petroleum products?
 - e. Do wholesale level inventory managers, upon receiving reports of excess material, promptly review

worldwide asset status and anticipated future demand for the reported material and direct redistribution to other users, return to a storage depot or transfer to a property disposal office, as appropriate?

- f. Do activities holding excess material promptly comply with wholesale level inventory managers' disposition instructions?
- g. Do effective procedures exist to ensure that the availability of excess and surplus material, including Government material in the possession of contractors, which is not reportable to wholesale level managers, is promptly made known to all potential Government users?
- h. Is excess material in the possession of property disposal offices or other holders fully accounted for to prevent diversion to unauthorized usage?

2. Ensuring that unneeded material which cannot be redistributed to meet Federal requirements is made available for fair and equitable donation to meet needs of eligible recipients in accordance with the intent of Congress.

- a. Do GSA, DOD and State Agencies for Surplus Property (SASPs) have effective and efficient procedures to identify and transfer surplus material needed by eligible donees for legitimate purposes?
- b. Does GSA have reasonable procedures to allocate donable surplus material among States on a fair and equitable basis, as required by Public Law 94-519?
- c. Do the SASPs have reasonable procedures to allocate property approved for donation by GSA among eligible donees in each State fairly and equitably, based on the relative needs and resources of the donees?

3. Ensuring that an effective marketing program exists to insure that the Government receives the highest possible net return from the sale of property which is not redistributed or donated.

- a. Do sales activities employ types of sales which will return the highest net proceeds for the material being sold, including auctions, sealed bid, spot bid, negotiated and local site sales?
- b. Is material reconditioned or "spruced up" in appearance when this will increase net sales revenue?

- c. Are sales adequately advertised and publicized?
- d. Is material displayed or described in advertisements so as to enable potential buyers to be sure of what is being sold?

In the recent past we have concentrated on addressing the second objective listed previously. This has occurred because of the enactment of Public Law 94-519. This law, which became effective in 1977, brought about significant changes in the Government's policies and procedures for transferring unneeded, excess and surplus, personal property to non-Federal recipients, i.e. grantees and donees. The Law greatly restricted the long-standing practice of many Federal agencies of acquiring excess Federal property and providing it without cost to their grantees. With only four exceptions, Federal agencies desiring to provide excess property to grantees must pay 25 percent of the property's acquisition cost to the Treasury. The Law also repealed section 514 of the Public Works and Economic Development Act of 1965, under which excess property costing hundreds of millions of dollars was being transferred, at no cost, to thousands of State, municipal, Indian and tax-supported or nonprofit organizations to be used for economic development purposes. To compensate for the drastic curtailment in the flow of excess property to these grantees and other non-Federal organizations, the Law greatly expanded the number and types of organizations eligible to receive surplus property under the Donation Program. Formerly, surplus property could be donated only to certain specified donees and only for the purposes of education, public health or civil defense. Now, in addition to the formerly eligible recipients, property can be donated to any tax-supported "public agency" (States, municipalities, etc.) to be used for one or more "public purposes" which include, but are not limited to, conservation, economic development, education, parks and recreation, public health and public safety.

The Law assigned GSA the entire Federal responsibility for administering the expanded Donation Program. GSA had previously shared the responsibility for the more limited program with the Department of Health, Education and Welfare. As a result, GSA completely rewrote the Federal Property Management Regulations (FPMR) to reflect the restrictions and numerous requirements of Public Law 94-519 pertaining to the transfer of excess and surplus property to non-Federal organizations. The new FPMR contains numerous policy and procedural requirements which must be complied with by GSA and all other Federal agencies, State Agencies for Surplus Property in every State, and the many thousands of grantees and donees eligible to receive excess and surplus property. The predominant objectives of the Law as it pertained to the Donation Program were to ensure that:

--surplus personal property be donated to the maximum extent possible to meet the needs of eligible donees.

--GSA allocated donable property among the States on a fair and equitable basis.

--SASPs distributed donable property among donees within the States on a fair and equitable basis.

The Law contains an open-ended, comprehensive reporting requirement, making it necessary for us to submit biennial reports on its impact and implementation (questions 2a, 2b, 2c). More specifically, every two years we must provide the Congress a report covering:

--a full and independent evaluation of the operation of the Law,

--the extent to which the objectives of the Law have been fulfilled,

--how the needs of non-Federal organizations served by prior Federal personal property distribution programs have been met,

--an assessment of the degree to which the distribution of the surplus property has met the relative needs of the various public agencies and other eligible recipients, and

--such recommendations as we determine to be necessary or desirable.

To the extent that our Public Law 94-519 obligation allows, we plan to concentrate our efforts in this area on the questions which must be addressed to achieve the first objective listed previously--ensuring that Federal activities realize the maximum benefit, through recycling or redistribution, from material determined to be unneeded at its current location.

We recently completed a review in which we convinced the Army that its inventory control points (ICPs) needed to increase their efforts to provide long supply material to weapons systems production contractors as Government-furnished material (questions 1b and 1c). We found that four of the five Army ICPs were failing to screen hundreds of millions of dollars of long supply material for possible use as Government-furnished material and, therefore, missing opportunities to reduce their contract costs.

We plan to concentrate on the first objective listed above because its achievement will, in our opinion, bring about the most desirable use of "unneeded" material, i.e., put it to use in a way that will preclude or reduce procurement of new material. However, its full achievement will be extremely difficult because of the tendency of many Federal material managers to devote limited attention to material they consider to be unneeded, because the problem is so widespread in the Government, and because we will probably be able to devote only limited resources to correcting the problem.

CHAPTER 14

CAN LOGISTICS EFFECTIVENESS BE INCREASED THROUGH IMPROVED CATALOGING AND STANDARDIZATION PRACTICES?

After WW II there existed within the Government a multitude of independent catalog and supply systems. As a result duplication existed in the purchasing, warehousing, handling, issuing and maintenance of Federal supplies. To correct the problem Congress passed laws in (1949-52) requiring the establishment of a Federal Catalog System. The intent of the system was to

- establish a single cataloging system,
- identify each supply item in a unique manner, and
- establish programs to limit the number of items in the system.

FEDERAL CATALOG AND STANDARDIZATION SYSTEM

The Federal Catalog System is the official program under which equipment and supplies purchased by 61 Defense agencies, 87 civil agencies, and about 24 foreign governments are uniformly named, described, classified, stock numbered, and the subsequent data published for use by Government and industry. The system, operated jointly by DOD and GSA is the central repository of descriptions and management data for about 6 million items of supply.

Government employees in all agencies turn to a catalog system product to identify the supply items they need to help them accomplish their mission. Simple items such as paper, office supplies and furniture are examples. As the Government task becomes more oriented to the large fleets of vehicles and weapon systems used, the dependence on the catalog system data becomes greater. Maintenance people, inventory managers, designers, and military planners all depend on the catalog as a valuable tool for use in their jobs.

The standardization programs were initiated in Federal agencies in an effort to stem the prolific growth of similar type items used by agencies. Accomplished thru the item entry controls and item deletion actions, the standardization goals require a centralized data bank of item descriptions, which the Federal Catalog provides, and a knowledge of items used by agencies which the cataloging personnel possess. It has therefore been a reasonable approach to operate these functions in a close proximity to each other. Certain item review functions performed by agency catalogers achieves the standardization programs goals.

Like the standardization programs, people rely on the catalog data and the catalog data base as the place to officially record their decisions.

Effective cataloging and standardization programs directly affect the multimillion dollar inventory management functions performed by numerous agencies. Ineffective standardization and item entry procedures which allow the cataloging of unnecessary items, inaccurate maintenance of data, or untimely deletion of items can result in the loss of management funds and lack of logistics support which may range from a few hundred dollars an item to thousands of dollars per item, or result in the grounding of major end items such as aircraft, tankers, missiles, etc.

About \$95 million is required yearly by Federal agencies to operate these programs. The data bank computers are operated by DOD at a yearly cost of about \$18 million. The data bank is required for and organized into the following segments:

- Item identification.
- Utilization and marketing.
- Interchangeability and substitutability.
- Publications.
- Supply management.
- Statistical reports.

About \$60 million a year is required to operate the item entry and standardization programs intended to assure that only essential items of the quality needed to meet Government needs are acquired. The entry screening process is an attempt to prevent the cataloging of the same item more than once and to curb the buildup of a large number of unnecessary similar items in the logistics systems. One approach to achieve the latter is to use existing items in the new equipment being developed for the Government.

During the 1970's, about 280,000 new items a year have entered the catalog and supply system. Standardization programs and techniques have been developed to assure that only essential items are in the catalog system.

An item reduction program is currently funded at \$11 million. This area has consistently shown a high payoff for resources devoted. Despite these successes, the program is struggling, with some agencies such as GSA devoting no resources to the area.

Another \$6 million a year is required to purge from the supply and catalog system those items no longer needed. As the usefulness of an item decreases, it becomes necessary to schedule its phase-out--the important considerations being to utilize any on-hand inventory of the item before replacement items are introduced.

GAO OBJECTIVES AND EMPHASIS

The objective of the Federal Catalog System is to centrally record the identification and management data on all items used by Government agencies. Our overall objective is to assure that this cornerstone of the logistics system functions in an effective and economical manner. A number of programs have been set up in Federal agencies to achieve the intent of these programs. Agency efforts can be grouped into three categories--Item Entry Control, Cataloging and Item Deletion--which form the logical building blocks needed in taking a systematic approach to achieving our objective in this area.

In reviewing the three categories cited above, some of the key questions which need to be addressed to achieve this objective are:

- (1) Is sufficient top level management attention focused on the cataloging and standardization programs?
- (2) Can the organization structure and lines of responsibility be improved?
- (3) Is the legislative foundation of these programs adequate?
- (4) Is the catalog and supporting technical data adequately developed to properly identify item characteristics, parameters, users, manufacturers, item managers?
- (5) Is the data made available to everyone, including design contractors to preclude unneeded design and entry of new items?
- (6) Is the catalog and backup data adequate to meet the users' need? (One needs to recognize that often these users are relatively inexperienced.)
- (7) Can better dissemination of catalog data be achieved?
- (8) Can the accuracy of catalog data be improved, and can effective procedures be developed for periodic verification of such data?

- (9) Are catalog changes being held to the minimum necessary for effective supply management?
- (10) Can there be, and should there be, greater participation in the catalog system by allied countries to facilitate their support?
- (11) Can greater standardization be achieved in logistics practices by reducing dual management of identical items by two or more agencies?
- (12) Is there a fully automated processing of the masses of data which must be analyzed and compared to achieve a fully standardized Federal catalog system?
- (13) Are managers taking every opportunity to improve standardization of items to prevent unneeded items from entering the system and to eliminate items no longer needed?
- (14) Are the improvements in the science of cataloging and standardization adopted in a timely manner by all participating agencies?

In the early 1970's we reviewed the cataloging functions (questions 4, 8, 11 and 14), in the mid-1970's it was the item deletion programs (questions 4, 10 and 12) and the late 1970's our work concentrated on the item entry control functions (questions 1, 2, 5, 6, 7 and 13). In 1979 we prepared an overview report on all the prior recommendations, corrective actions taken, and those remaining. We found that while notable progress has been made, duplication of items continues to hamper effective Government supply operations. Based on the findings and recommendations of this report DOD, in conjunction with GSA, implemented in 1979 an improvement program of about 100 individual projects aimed at improving the catalog and standardization programs. These projects were anticipated to take one to three years to complete.

In addition, President Carter's Administrative Reorganization Study Group has completed its 1979 review of various DOD and GSA functions and concluded that the National Supply System concept should be implemented. This work will impact on the Federal cataloging and standardization programs and therefore could have an impact on all of our questions. We have worked closely with the President's Study Group, and believe that recommendations we have made to improve these programs will be implemented.

In view of the anticipated agency actions, GAO's effort in the future will be limited to monitoring the 100 DOD and GSA improvement projects (all questions). In addition, we plan to concentrate some resources on improving the accuracy of cataloging data (question 8) an area we believe to offer a real target for potential savings.

CHAPTER 15

CAN U.S. GOVERNMENT PRINTING BE IMPROVED?

Under the provisions of Title 44 of the United States Code, primary responsibility for setting and administering policy for the printing and distribution of Government publications rests with the Joint Committee on Printing (JCP). The responsibilities of the JCP include:

- Oversight of the Government Printing Office's (GPO) operations and policies.
- Establishment of policy for the Federal printing and distribution system through the formulation of regulations.
- Oversight of the operations of almost 300 department and agency printing plants, worldwide.
- Oversight of the Federal Printing Procurement Program.

In fiscal year 1979, total Government printing amounted to over \$1.0 billion of which about \$606 million was procured through GPO. Of this \$606 million, \$427 million was procured from commercial contractors and \$179 million was done by GPO in its own printing facilities.

We have noted certain problems in the printing area both in terms of control and execution, such as Executive agencies' complaints about GPO's responsiveness to their printing needs, the proliferation of documents generated by Government agencies, the historically low productivity in the printing area, and the lack of control over assuring that printing is done in an effective and economic manner.

We have concluded that the Government's current organizational structure is not the most appropriate for satisfying total Government printing and distribution needs in an economical and effective manner. The current structure--in which the JCP is involved in planning, doing, reviewing, and enforcing--does not (1) conform to prudent business practices from the standpoint of management and controls, (2) conform to the requirement that there be a separation of powers between the executive and legislative branches, and (3) afford the executive branch sufficient flexibility in satisfying its own printing needs. We have also concluded that controls over printing can and should be improved. This is particularly true in terms of executive agency printing plants and the increased usage of duplication equipment.

The need for revisions to the existing regulations, policies, and procedures for managing Government printing and distributing public documents is currently receiving extensive

congressional attention. For example, H.R. 4572 and S. 1436 were introduced in the House and Senate in June 1979. They were subsequently replaced by a single bill--H.R. 5424 which would have a substantial impact on Government printing and distribution. This bill calls for, among other things, a sweeping change in the organizational structure which oversees printing and distribution. The stated purpose of the bill is to provide for improved administration of public printing services and distribution of public documents. We believe the restructuring will help correct the organizational problems we have identified. We testified on the restructuring proposal at hearings on July 24, 1979, and May 21, 1980. This bill may not be passed by the Congress during this session and may have to be reintroduced in the next Congress.

Another on-going congressional action is by the JCP which is currently performing a series of open meetings and inspection tours throughout the U.S. to gather data in which to identify printing and distribution problems and to enable them to rewrite the "Government Printing and Binding Regulations." The JCP has completed 3 of its 11 planned open meetings and inspections. They expect to complete the other 8 and to begin rewriting the regulations in the Spring of 1981.

GAO OBJECTIVES AND EMPHASIS

Our overall objective in this area is to identify the most economical and effective ways in which the Government can meet its printing needs. To achieve this objective, the following questions need to be addressed:

- (1) What are the Government's printing needs?
- (2) How do Federal agencies and GPO decide what is to be printed and how many copies to print? Are more copies being printed than necessary?
- (3) Are Government agencies duplicating documents which would be more economical to print and vice versa?
- (4) Are there opportunities to increase the effectiveness of Government printing operations and to reduce operating costs?
- (5) How much in-house printing capability does the Government need? Can the number of printing plants be reduced?
- (6) Is today's organizational structure for managing the Government's printing operations conducive to effective management?

(7) Should the structure be changed to be more responsive to the Government's needs? If so, how should it be structured?

We have devoted extensive resources to reviewing Government printing operations in the past. For example, between 1973 and 1977 we issued 24 reports on Government printing operations identifying (1) the need to improve printing services provided Federal departments and agencies relating to rapid delivery of orders (Question 4), (2) opportunities to reduce costs and increase productivity by procuring more printing commercially and by interagency consolidation of inhouse printing plants (Questions 4 and 5), (3) the need to shorten response times in distributing documents to the public (Question 4), and (4) the need to improve management and operations of the Government Printing Office's regional printing procurement offices (Questions 4 and 5).

In 1977 we issued an overview report identifying actions taken on our many recommendations to improve the Government's printing operations and, where appropriate, recommended further action. More recently, we testified on the proposed restructuring of management of the Government printing operations. These past efforts have contributed greatly towards our overall objectives.

In the near future our major thrust in this area will be on addressing the question as to how printing decisions are made for different types of documents (Question 2). We will look at the management of periodicals because our earlier work in reviewing DOD operations disclosed the need to improve controls over the management of periodicals and that improved controls could reduce the numbers and costs. This effort will contribute to our work on question 2 by looking at the management of periodicals elsewhere in the Government.

As a secondary effort, we will look at several Federal agencies management of their duplicating and copying operations to identify ways to improve the effectiveness of these operations (Question 3). We will concentrate on this question because of the increased use of duplicating equipment in the Government.

Although our major thrust or emphasis will be on questions 2 and 3, we will also devote some attention to monitoring the congressional actions in the printing area, especially to actions taken on H.R. 5424 and the JCP open meetings and inspections.

These congressional actions concern questions 6 and 7. We will provide as much assistance as possible to the Congress on both actions.

GAO REPORTS ON LOGISTICS MATTERS
ISSUED SINCE MARCH 1, 1980

CAN ALTERNATIVE LOGISTICS CONCEPTS,
STRUCTURES, AND POLICIES PROVIDE
NECESSARY MISSION SUPPORT AT LOWER
COST?

DOD Automated Materials Handling Systems--
Need to Standardize and Follow GSA ADPE
Approved Process (LCD-80-49, 4/24/80)

Replacement and Usage Plans for Switching
Locomotives Should be Reevaluated (LCD-80-58,
5/12/80)

Air Force Watercraft Program Needs
Increased Manager Attention (LCD-80-60,
5/19/80)

Marine Corps Logistics System: Additional
Integration With Other DOD Logistics Systems
is Possible (LCD-80-74, 6/30/80)

Problems With Commercial Vehicles When Used
in Tactical Environments (LCD-80-114, 9/29/80)

Opportunities Still Exist For the Army To
Save Millions Annually Through Improved
Retail Inventory Management (LCD-81-16,
1/19/81).

ARE SOUND LOGISTICS POLICIES
ADEQUATELY IMPLEMENTED?

Need for DOD Focal Point for the Studies and
Analyses Program (LCD 80-97, 8/12/80)

Management of Small Arms and Ammunition in
the Federal Government (LCD 81-5, 10/24/80)

Effective Management of Ship Maintenance
Would Allow the Coast Guard to do More With
its Current Resources (LCD 81-12, 11/17/80)

CAN LOGISTICS MANAGEMENT INFORMATION
SYSTEMS BE IMPROVED?

Intransit Visibility Performance Evaluation
Systems Need Improvement (DM 80-23, 6/9/80)

CAN THE DETERMINATION OF WHOLESALE NEEDS
BE IMPROVED?

The Key to More Effective Small Arms
Management: Increased Asset Visibility
and Improved Inventory Control (LCD 80-41,
3/24/80)

IS INTEGRATED LOGISTICS SUPPORT PLANNING
ADEQUATE TO ASSURE THAT COMPLEX WEAPONS
SYSTEMS' GOALS ARE MET AND LIFE CYCLE
COSTS ARE OPTIMIZED?

Operating and Support Costs of the Navy
F/A-18 Can Be Substantially Reduced
(LCD 80-65, 6/6/80).

F-16 Integrated Logistics Support: Still
Time to Consider Alternative Plans and
Save Money (LCD 80-89, 8/20/80)

CAN INVENTORY MANAGEMENT AT THE USER
AND RETAIL LEVEL BE IMPROVED?

The Army Can Save Millions Annually By
Properly Considering Serviceable Returns
in its Requirements Computations (LCD 80-64,
5/15/80)

Controls Over Property In Custody of Military
Units Can Be Improved (LCD 80-66, 6/6/80)

The Army Should Increase its Efforts to
Provide Government-Furnished Material to
Contractors (LCD 80-94, 8/11/80)

Supply Support Costs of Combat Ships Can
Be Reduced by Millions and Readiness
Enhanced (LCD 81-9, 1/15/81)

DO STORAGE AND PRESERVATION SYSTEMS PROVIDE
ADEQUATE CONTROL AND PROTECTION OF MATERIAL
INVENTORIES?

GSA's Supply Depot Operations Can Be Improved (LCD 80-86, 7/15/80)

IS THE DISTRIBUTION OF MATERIAL AND THE
MOVEMENT OF PERSONNEL DONE EFFICIENTLY?

The Direct Commissary Support System Should Be Extended to Include More Army Commissaries in Europe (LCD 80-55, 5/20/80)

Better Controls and Data Needed to Distribute Defense Medical Supplies (LCD 80-77, 6/25/80)

Use of Great Lakes Parts and the St. Lawrence Seaway for Government Export Shipments (LCD 80-87, 7/24/80)

Management of Cold Storage Facilities Needs Improvement (LCD 80-95, 8/1/80)

Opportunities to Improve the Navy's Retrograde Materials Program (LCD 80-99, 8/14/80)

Millions of Dollars Can Be Saved by Storing Air Force Inventories Nearer (LCD 80-105, 8/22/80)

If Excess Chartered Sealift Capacity is Needed for Contingencies, It Should Be Put to Maximum Peacetime Use (LCD 80-110, 9/30/80)

DOD Carrier and Evaluation and Reporting System (LCD 81-6, 10/6/80)

Opportunities to Improve the Army's Stock Distribution Practices (LCD 80-116, 10/8/80)

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OF EQUIPMENT TO REDUCE EQUIPMENT REQUIREMENTS?

The Army's Systems For Developing Resource Requirements are Ineffective (LCD 80-67, 6/30/80)

APPENDIX I

Excessive Procurement of Tactical Aircraft for Noncombat Missions (LCD 80-83, 7/22/80)

DOD's Management of Automatic and General Purpose Electronics Test Equipment (LCD 80-106, 9/4/80)

ARE EQUIPMENT MAINTENANCE PROGRAMS AND PROCEDURES
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Opportunities for the Navy to Reduce Ship Overhaul Costs (LCD 80-70, 6/17/80)

Review of Naval Reserve Destroyer Force (LCD 80-76, 7/3/80)

Late Fire Control System Deliveries Have Delayed Fielding of New and Converted M-60A3 Tanks (LCD 80-79, 6/30/80)

Army Combat Vehicle Depots: Mobilization Planning and Peacetime Maintenance Operations Need to Be Improved (LCD 80-82, 8/7/80)

Comparison of Air Force and Navy Depot Overhaul and Repair Practices (LCD 80-85, 7/8/80)

IS UNNEEDED PROPERTY MANAGED PROPERLY?

Transfers of Excess and Surplus Federal Personal Property--Impact of Public Law 94-519 (LCD 80-101, 9/30/80)